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Test Report

R60 **BAIRD "BAFFLE"**

BAIRD "BAFFLE"

a.c.-d.c. radio receiver

THE receiver is a 5-valve superhet with three preset tuned circuits for switch selection. It is fitted with an internal box frame aerial, has an input socket for gramophone pick-up and two output sockets. Two standard models are produced, providing the option of long or medium wave Light programme reception. The receiver is marketed by Baird Television, Lancelot Road, Wembley, Middlesex (telephone: Wembley 6191-5).

Circuit Details

A high-Q frame aerial is tuned by three preset trimmers, feeding the signal to the mixer grid. Three separate oscillator coils are used, which are resonated by a single fixed capacitor (C5) and adjusted by iron dust or brass cores. The tuning ranges for the two models are as follows:

Model A: (1) Home Service, according to region; (2) Light Programme, 1,214 kc/s; (3) Third Programme, 647 kc/s. Model B: (1) Home Service, according to region; (2) Light Programme, 200 kc/s; (3) Third Programme, 647 kc/s.

By realignment, the following frequency-range limits are available: Model A: (1) 600–1, 400 kc/s; (2) 760–1, 200 kc/s; (3) 460–1,055 kc/s. Model B: (1) 850–1,700 kc/s; (2) 150–250 kc/s; (3) 460–1,050 kc/s.

If necessary, coil changes can give any switch position a range of 1,700–500 kc/s on Model A and 150–250 kc/s on Model B.

The output of the frequency changer is trans- d to the i.f. amplifier V2 via a permeability d i.f. transformer T1 and this in turn is fed V3 via a second tuned i.f. transformer. Coupling between these stages is by means of band-pass tuned circuits.

V3 functions in the conventional triple-purpose arrangement; a.v.c. is obtained from one diode and fed back to the i.f. and mixer stages and the second diode (demodulator) feeds the triode a.f. amplifier section via a wafer of the ganged switch to bring in the pick-up sockets when required. The volume control VR1 operates on both radio and gram positions. The p.u. socket is designed for an input level of approximately 0.5 volts at 1 megohm impedance.

The output amplifier V4 delivers an audio output of 4 watts to the 10in. 3-ohm speaker. Negative feedback is introduced between the output stage and the triode a.f. amplifier, improving the damping on the speaker and preventing dangerous voltages building up across the output transformer when the loudspeaker is disconnected. Two jack sockets are connected to the speech coil circuit.

One gives an attenuated output suitable for feeding the input of a tape recorder amplifier. The other is a break circuit jack which cuts out the feed from the output transformer to the speaker when the jack is inserted and connects the jack directly to the speech coil enabling the baffle speaker to be used as an external speaker for a tape recorder or other extension speaker purposes.

The power supply consists of a half-wave rectifier with conventional filtering. The valve heaters are connected in a series chain directly from the mains via the tapped dropping resistor R22. Mains consumption of the receiver is 60 watts.

SERVICE SNAPS OF THE BAIRD "BAFFLE" RADIO

Valves: One each of 10C1 (f.c.), 10F9 (i.f. amp.), 10LD11 (det., a.v.c., a.f.), 10P14 (o/p), U404 (h.w. rec.).

I.F.: 470 kc/s.

Electrolytics: 100+60μF, 350V wkg.; two 50μF, 12V wkg.

Volume Control: 1 megohm, variable log-law, with d.p. switch.

Mains Supply: 200–250V a.c. or d.c. *Live chassis.*

Installation

No external aerial is required. The receiver is designed to fit into the corner of a room or to stand with its back to the wall. If, however, signals are weak (or interference severe) considerable improvement may be possible by turning the receiver on its axis, due to the directional properties of the frame aerial.

ALIGNMENT PROCEDURE

I.F. Alignment

Short C5 and connect the junction of C3 and C4 temporarily to chassis. Then inject a signal of 470 kc/s at a level of 500 μV via a 0.1 μF capacitor to the grid of V1 (frame aerial should be plugged in). With a 10,000 ohms-per-volt-meter, measure the voltage between R9/R10 junction to chassis. This should normally be approximately 1.5 volts negative d.c. Adjust each of the four i.f. transformer slugs to obtain maximum meter reading.

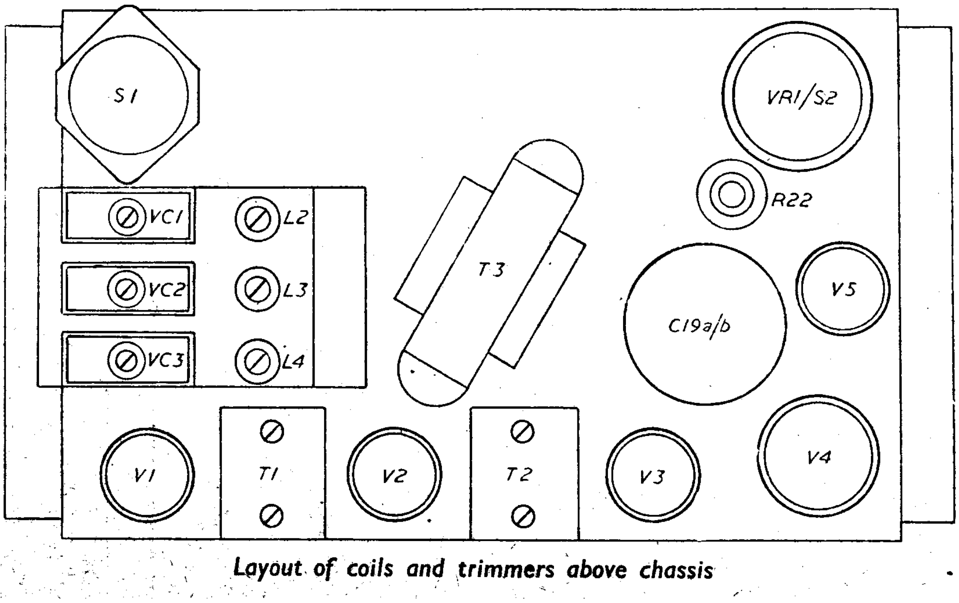
R.F. Alignment

Receivers are marketed tuned to stations listed previously in the circuit description. If any different station is required within the frequency range limits given, the following procedure should be adopted:—

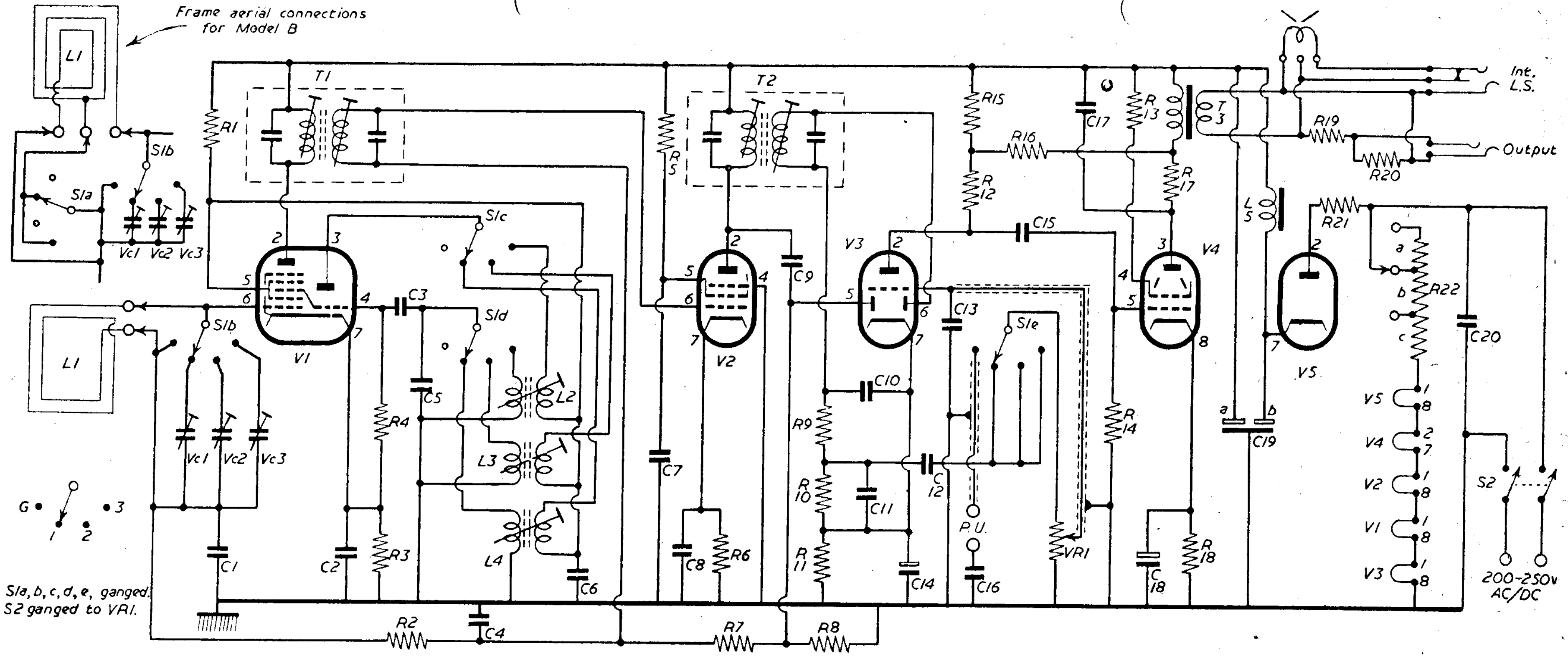
(1) Connect signal generator to the aerial circuit, very loosely, by placing its "hot" lead near the frame aerial and set its frequency to that of the required station; (2) set the selector switch to the position required; (3) measure the voltage across C1. Note that the yellow lead on the selector switch is connected to C1, enabling this operation to be carried out without removing the chassis from the cabinet; (4) adjust the slug of the coil appropriate to switch position —see table below—to give maximum meter readings; (5) adjust aerial tuning trimmer adjacent to the coil to give maximum meter reading; (6) repeat operations (4) and (5) using signal from the station to be received.

Miscellaneous

It may sometimes be necessary to use a brass instead of the iron dust core; the thread is 0 BA. Should the required station not come within the normal range of the oscillator coil it is possible to replace it with one of suitable inductance and then re-align as previously described. To replace a coil, unsolder the leads from the four tags on the coil, turn it slightly clockwise and withdraw it. Replace with new coil, taking care to ensure that the shaped end fits well into the cut-out on the bracket, and turn carefully anti-clockwise to lock it. Then resolder the fc leads.



Layout of coils and trimmers above chassis



Circuit diagram of the Baird "Baffle" a.c.-d.c. radio receiver

VOLTAGE TABLE

Valve	Anode	Screen	Cathode	Heater (high)	Heater (low)
V1 (hexode)	210	100			
V1 (triode)	100	(—7 grid)			
V1 (common)			3*	48 a.c. (pin 8)	17 a.c. (pin 1)
V2	210	105	2.75*	64 a.c. (pin 8)	48 a.c. (pin 1)
V3 (triode)	100		2.5	zero (pin 1)	17 a.c. (pin 8)
V4	195	210	230	150 a.c. (pin 8)	105 a.c. (pin 1)
V5	105 a.c.		230	150 a.c. (pin 8)	105 a.c. (pin 1)

* *No signal conditions.*
Above readings taken on Model 7 Avometer.

Switch and Trimmer Positions

Switch position	Model A			Model B		
	Trimmer & Coil		Station	Trimmer & Coil		Station
1	VC2	L3	Home, or region	VC1	L2	Home, or region
2	VC1	L2	Light (MW)	VC3	L4	Third
3	VC3	L4	Third	VC2	L3	Light (LW)

COMPONENT LIST

Resistors

R1	6,800Ω
R2	100,000Ω
R3	180Ω
R4	47,000Ω
R5	39,000Ω
R6	270Ω
R7	1MΩ
R8	1MΩ
R9	47,000Ω
R10	270,000Ω
R11	1,500Ω
R12	47,000Ω
R13	100Ω
R14	470,000Ω
R15	4,700Ω
R16	100,000Ω
R17	100Ω
R18	200Ω
R19	1,000Ω
R20	100Ω
R22a	200Ω
R22b	200Ω
R22c	600Ω
VR1	1MΩ

Capacitors

C1	0.05µF
C2	0.1µF
C3	50pF
C4	0.1µF
C5	200pF
C6	0.1µF
C7	0.1µF
C8	0.1µF
C9	100pF
C10	100pF
C11	100pF
C12	0.01µF
C13	0.005µF
C14	50µF
C15	0.05µF
C16	0.1µF
C17	0.003µF
C18	50µF
C19	100µF
C20	60µF
C21	0.005µF

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